FORM PTO-1390 (Modified) (REV 11-2000) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER	
112740-372	
U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR)	
10/019329	

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/DE00/02020	21 June 2000	23 June 1999

TITLE OF INVENTION

MOBILE PHONE WITH EXPANDED TELEPHONE DIRECTORY

APPLICANT(S) FOR DO/EO/US

Volker Diechmann et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☒ is attached hereto (required only if not communicated by the International Bureau).
   b. ☐ has been communicated by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
   a. ☒ is attached hereto.
   b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are attached hereto (required only if not communicated by the International Bureau).
   b. ☒ have been communicated by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired
   d. ☐ have not been made and will not be made.
8. ☒ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☒ A copy of the International Search Report (PCT/ISA/210).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☒ A substitute specification
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☐ Other items or information:

U.S. APPLICATION NO (IF KNOWN, SEE 37 CFR)	INTERNATIONAL APPLICATION NO	ATTORNEY'S DOCKET NUMBER
10/019329	PCT/DE00/02020	112740-372

24. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :		CALCULATIONS PTO USE ONLY
☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO	$1040.00	
☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO	$890.00	
☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO	$740.00	
☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)	$710.00	
☐ International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)	$100.00	
ENTER APPROPRIATE BASIC FEE AMOUNT =		$890.00
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).		$0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	8 - 20 =	0	x $18.00	$0.00
Independent claims	1 - 3 =	0	x $84.00	$0.00
Multiple Dependent Claims **(check if applicable)**.			☐	$0.00
TOTAL OF ABOVE CALCULATIONS			=	$890.00
☐ Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.				$0.00
SUBTOTAL			=	$890.00
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).			+	$0.00
TOTAL NATIONAL FEE			=	$890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**			☐	$0.00
TOTAL FEES ENCLOSED			=	$890.00
			Amount to be: refunded	$
			charged	$

a. ☒ A check in the amount of **$890.00** to cover the above fees is enclosed.

b. ☐ Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **02-1818** A duplicate copy of this sheet is enclosed.

d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card information should not be included on this form.** Provide credit card information and authorization on PTO-2038

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

William E. Vaughan (Reg. No. 39,056)
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SIGNATURE

William E. Vaughan
NAME

39,056
REGISTRATION NUMBER

December 21, 2001
DATE

BOX PCT

IN THE UNITED STATES ELECTED/DESIGNATED OFFICE
OF THE UNITED STATES PATENT AND TRADEMARK OFFICE
UNDER THE PATENT COOPERATION TREATY-CHAPTER II

PRELIMINARY AMENDMENT

APPLICANTS:	Volker Deichmann et al.	DOCKET NO.:	112740-372
SERIAL NO:		GROUP ART UNIT:	
FILED:		EXAMINER:	
INTERNATIONAL APPLICATION NO::		PCT/DE00/02020	
INTERNATIONAL FILING DATE		21 June 2000	
INVENTION:	MOBILE PHONE WITH EXPANDED TELEPHONE DIRECTORY		

Assistant Commissioner for Patents,
Washington, D.C. 20231

Sir:

Please amend the above-identified International Application before entry into the National stage before the U.S. Patent and Trademark Office under 35 U.S.C. §371 as follows:

In the Specification:

Please replace the Specification of the present application, including the Abstract, with the following Substitute Specification:

SPECIFICATION

TITLE OF THE INVENTION

MOBILE PHONE WITH EXPANDED TELEPHONE DIRECTORY

BACKGROUND OF THE INVENTION

The present invention relates to a mobile phone, in particular a mobile phone according to the GSM (GSM = Groupe Speciale Mobile) standard, having at least one electronic telephone directory, one of which is stored on the SIM card and, if applicable, the other electronic telephone directory or directories is/are arranged in the nonvolatile memory of the telephone.

Mobile phones of the prior art according to the GSM standard generally have at least one electronic telephone directory, and it has now become the practice almost always to use two or more telephone directories. One of these telephone directories is stored on the SIM (SIM = Subscriber Identity Module) card, referred to below as SIM, and thus can be transported from one mobile phone to another. In contrast, the other telephone directory or directories is/are in the nonvolatile, internal memory which can be formed, for example, by EEPROMs or flash or battery-buffered RAM modules.

The internal data format of the SIM for storing telephone directory entries requires that a telephone directory entry be composed of a sequence of numbers (telephone number) and an associated sequence of alphanumeric characters (name). The maximum length of the telephone number is at least 20 numbers, and the maximum length of the name can be between 0 and 241 characters.

The same format is usually used for telephone directory entries which are located in the nonvolatile memory, it being possible for the maximum lengths to differ from those on the SIM card. In other words, the number of attributes or features of a telephone directory entry, an attribute being a telephone number or a name in this case, has been prescribed by the GSM standard and SIM card and is two.

Because, to date, the number of attributes for telephone entries of an SIM card has been prescribed, flexible use of the telephone directory of a mobile phone (for example, the grouping of telephone numbers according to certain properties such as work or personal), has not been possible.

The document EP-A-0 860 970 discloses a method for administering an electronic telephone directory or a telephone number database in the form in which it exists, for example, on an SIM card of a mobile phone. The telephone number database is divided into two memory areas; namely, into a first memory area in which telephone numbers which can be addressed via an abbreviated dialing method are arranged, and into a second memory area in which telephone numbers which cannot be addressed via an abbreviated dialing method are arranged. If a telephone number in the second memory area without the abbreviated dialing property is then to be shifted to a storage location in the first memory area with the abbreviated dialing property, the telephone number to be shifted is first shifted into a buffer, the number at the destination of the first memory area is shifted to the exit location of the memory area

of the number to be shifted and then the number to be shifted is removed from the buffer and transmitted to the destination in the first buffer.

The document WO 98/30053 shows a mobile radio unit which has a telephone directory which is stored on an SIM card and a telephone directory which is stored in an EEPROM of the mobile radio unit. In order to select telephone directory entries easily, the two telephone directories are combined in an assignment table and abbreviated dialing numbers are assigned to specific telephone directory entries.

The document EP-A-0 915 604 discloses a method for searching through a database for a specific entry; in particular, for searching for an entry in a telephone directory which is stored in a mobile phone. The improved searching for a telephone directory entry is carried out in that, starting with the entry of a specific letter, all the variations of entries which have the entered letter and a different second letter are displayed. If the second letter of the entry is then also determined, all the variations of the first two entered letters appear with a third variable letter which also can be specified in a subsequent step. By repeated inputting of the respective following letters, a specific database entry or telephone directory entry is thus found.

The present invention is, therefore, directed toward acquiring expanded applications via telephone directory entries, in particular of forming groups of telephone directory entries and, in this way, dividing up the telephone numbers according to personal, business or other criteria, for example. The intention of the present invention is to overcome the format of the number of attributes which has been previously prescribed by the GSM standard and is of restricted length.

SUMMARY OF THE INVENTION

According to the present invention, any electronic telephone directory of a mobile phone is supplemented by, in each case, one database which is located in the nonvolatile memory of the mobile phone, each database being assigned to precisely one specific telephone directory. The uniquely defined assignment is made via a key.

Each database entry here is preferably indexed via a telephone number and has what is referred to as an attribute data field which is composed of a list of attribute designator/attribute value pairs, an attribute designator specifying the nature of the attribute value (for example, address), and an attribute value representing the value of the attribute; for example, the address associated with the telephone number. The

attribute value can remain empty if the existence of the attribute is sufficient as information (for example, car pool). If there is only one, it does not need to be specified in more detail with a value.

When an entry in a telephone directory is accessed, a test is first automatically carried out to determine whether there is a database for this telephone directory. If this is the case, the additional information present in the database relating to the telephone number of the above entry can be made accessible as a key. The database which is assigned to a telephone directory is preferably in the form of an expansion telephone directory. A number of expansion telephone directories also can be assigned to each telephone directory.

The advantages of the present invention result from the number of possible attributes. Conceivable additional attributes for telephone numbers are:

- Fax-compatible, SMS-compatible, voice-compatible, email-compatible:
  Telephone numbers which are characterized with this attribute permit the selection of a corresponding service when text messages are transmitted.
- Personal, business, etc.:
  Telephone numbers which are characterized with this attribute can be assigned to specific groups, for example, to the group of private telephone numbers or to that of business telephone numbers. Access to the telephone directory thus can be made easier in that the user first specifies the group in which he/she would like to search and then subsequently searches, for example, alphabetically for the desired subscriber within the selected group.
- Supervisory board, management group, etc.
  These attributes can designate groups to which the user would like to send text messages, fax messages or voice messages. The selection of the transmission method could be carried out automatically in conjunction with the compatibility attribute In addition, the mobile phone could automatically switch conference circuits with the respective group members via these attributes.

- Address, etc.

  In the case of these attributes, in contrast to the previous ones, an attribute value, namely the address associated with the telephone number, is associated with the attribute "address". This address could be used as additional information by the user or be integrated into the fax header when a fax message is sent.

- Language:

  The value of the attribute language indicates, for example, which language the fax header should be in.

- Alternative call number:

  The value of this attribute determines an alternative call number which is selected automatically if the primary number is, for example, occupied or cannot be reached.

- Ringing tone:

  The attribute value defines the ringing tone, in order, for example, to distinguish acoustically between a call from the characterized number and other numbers via the pitch or the sound.

- Response method:

  The attribute value indicates whether or not a call is to be automatically accepted from the assigned telephone number. A possible method would be to accept the call in order then to play a specific short text (voice message), or that the mobile phone stores the calling telephone number and informs the mobile phone owner of the attempt to make a call or possibly of the content, by email or by fax.

Additional features and advantages of the present invention are described in, and will be apparent from, the following detailed Description of the Invention and the Figures.

BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 shows a schematic view of the inventive expansions of the telephone directory of a mobile phone.

Fig. 2 shows an example of an attribute in the expanded telephone directory according to the present invention.

Fig. 3 shows a completed, expanded entry.

DETAILED DESCRIPTION OF THE INVENTION

There are two implementation proposals for the invention.

Fig. 1 shows a mobile phone 1 with its accessories. It includes inter alia, an SIM card 2, 3 and a nonvolatile internal memory 10. Part 11 of the nonvolatile memory 10 is used for storing one or more telephone directories 13, 14.

An SIM card 2 is inserted into the mobile phone 1 in a schematic view. The other view of the same SIM card 3 serves for explanatory purposes. On such an SIM card 2, 3 there is a nonvolatile memory 8, part 9 of which is used as a telephone directory 15. In addition, the SIM card 2, 3 contains what is referred to as the IMSI (International Mobile Subscriber Identity) 7 for identification purposes.

In addition, an entry 6 of a telephone directory 15 of an SIM card 2, 3 is illustrated in the lower part of Fig. 1. Such an entry 6 contains the telephone number 4 and the name 5 of the subscriber; i.e., two attributes.

The first implementation assigns a second expansion telephone directory 17, 18, 19 to each standard telephone directory 13, 14 and/or 15 which has the standard storage entries 6 composed of the telephone number 4 and name 5, stored in the nonvolatile memory unit 9 of the memory 8 of the SIM card 2, 3 or in the nonvolatile memory unit 11 of the memory 10 of the mobile phone 1. The expansion telephone directory 17, 18, 19 is arranged in a further memory unit 16 of the nonvolatile memory 10. The assignment is made by reference to a uniquely allocated identification number 12. The identification number 1, which appears in the expansion telephone directory 17 as E1, is represented for the telephone directory 13 in Fig. 1. A 2 is schematically represented for the telephone directory 14, to which the expansion telephone directory 18 is assigned with the identification number E2. In an analogous fashion, a telephone directory with the IMSI 0542876 is correspondingly assigned to the expansion telephone directory 19 with the number E0542876; i.e., the telephone directory 15 is assigned to the illustrated SIM card 3.

In addition, further expansion telephone directories 20, which relate to SIM card telephone directories of SIM cards (not illustrated) other than those which are currently in use can be located in the region 16 of the nonvolatile memory 10.

Fig. 2 then illustrates the entries 24 of an expansion telephone directory 17, 18, 19, 20. Such expanded entries 24 of an expansion telephone directory are composed of the telephone number 21 and a data field 25 of a variable size.

The attributes which are assigned to the telephone number 21 and are composed of an attribute designator 22 and an attribute value 23 are in this data field 25, it being possible for the attribute value 23 to be empty at specific attribute designators 22. For example, the attribute designators "voice-compatible", "business" or "supervisory board" do not have to contain an attribute value, but they can.

The attribute value specifies the nature of the attribute designator. This is apparent from the examples illustrated. For example, the attribute designator "address" is specified by the value; i.e., the actual address. For the attribute designator "language", "German" specifies the value. The same applies to "alternative call number" and "ringing tone".

The attribute values are represented syntactically in inverted commas and separated off from the preceding attribute designator by a colon. The attribute value can be omitted if the existence of the attribute designator is sufficient as information.

During the reading process, the entry in the standard telephone directory is linked to the entry in the expansion telephone directory by reference to the telephone number, and is available as an expanded telephone directory entry 24.

During storage, the entire telephone directory entry which is made available by a corresponding application is split into a standard telephone directory entry 6, i.e., telephone number and name, and into an expanded telephone directory entry 24, i.e., telephone number and attributes (which are empty under certain circumstances). The entries are stored separately. The storage of an expanded entry 24 can be dispensed with if the attributes are empty. In this case, it would, however, be necessary to check whether there is an entry in the expanded telephone directory 17, 18, 19, 20. This would then have to be erased. Otherwise, a superfluous link would be produced.

During searching, operations are carried out sequentially. Depending on the search criterion, the standard telephone directory is firstly searched through for the telephone number or name, or the expansion telephone directory searched through for specific attributes. The entries which are found are completed to form expanded telephone directory entries.

The deletion of entries is carried out by reference to the telephone number, both the entry in the telephone directory and the entry in the expanded telephone directory being erased.

In the second implementation as illustrated in Fig. 3, telephone directories which are stored in the nonvolatile internal memory 10 of the mobile phone 1 differ in format from those external telephone directories which are stored on the SIM card 2, 3. Here, the entries in the internal telephone directories correspond in format to the expanded telephone directory 24 described above in the first implementation, the internal telephone directory now containing not only the telephone number 4, 21 but also the name 5.

For each external telephone directory 15, therefore, there is an internal telephone directory 19 which is, in turn, uniquely assigned to the external telephone directory by the IMSI (International Mobile Subscriber Identity) 7. Reading and writing access operations to telephone directories to which an external telephone directory is assigned are permitted only if the SIM card 2, 3 is inserted.

Apart from the internal telephone directories which are assigned to the external telephone directories stored on SIM cards, there also can be further internal telephone directories.

Whenever the telephone is switched on or an SIM card is inserted, the entries in the SIM card telephone directory are compared with the entries in the assigned internal telephone directory. Entries which are present in the external telephone directory but not in the internal one are copied. Because there are no attributes in entries of external telephone directories because the format does not permit any for entries in SIM card telephone directories, this data field remains empty in the entries in the assigned internal telephone directory. Entries which are present in the internal assigned telephone directory, but not in the external one, are erased in the internal one. In the case of entries which are present in both telephone directories but are different, the entry in the internal, assigned telephone directory is overwritten by the entry in the external telephone directory.

Reading access operations to telephone directories are made only to the internal telephone directories. In the case of reading access operations which relate to

the SIM card telephone directory, the internal assigned telephone directory is resorted to.

In the case of writing access operations, entries which are reduced to the telephone number and name are written to the SIM card telephone directory, and complete expanded entries are stored in the internal telephone directory.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

ABSTRACT OF THE DISCLOSURE

A mobile phone with an expanded telephone directory, wherein any electronic telephone directory of the mobile phone is supplemented by, in each case, one data base located in the nonvolatile memory of the mobile phone, each data base being assigned to precisely one specific telephone directory. The data base assigned to a telephone directory is preferably an expansion telephone directory, and a number of the expansion telephone directories can be assigned to each telephone directory.

In the claims:

On page 12, cancel line 1, and substitute the following left-hand justified heading therefor:

CLAIMS

Please cancel claims 1-8, without prejudice, and substitute the following claims therefor:

9. A mobile phone, comprising:

a nonvolatile memory;

an SIM card;

at least one electronic telephone directory, one of the at least one of the electronic telephone directory being stored in a memory of the SIM card and another of the at least one electronic telephone directory, if applicable, being stored in the non -volatile memory, a number of attributes including telephone numbers and names of the at least one telephone directory being prescribed by the SIM card; and

at least one database stored in the nonvolatile memory and, each of the at least one database being respectively assigned to one of the at least one electronic telephone directory, wherein each entry of a telephone directory may be assigned to a corresponding database entry having a data field of variable size with respect to a number of additional attributes assigned to the telephone directory entry.

10. A mobile phone as claimed in claim 9, wherein each telephone directory is assigned precisely one database.

11. A mobile phone as claimed in claim 9, wherein each database has a key associated with the respective assignment between the database and the associated telephone directory.

12. A mobile phone as claimed in claim 9, wherein each of the database entries includes a characteristic diagram which points to the corresponding telephone directory entry in the corresponding telephone directory.

13. A mobile phone as claimed in claim 12, wherein the characteristic diagram of the database entry contains the corresponding telephone number.

14. A mobile phone as claimed in claim 12, wherein the data field of a database entry contains the additional attributes of the telephone number of the corresponding telephone directory.

15. A mobile phone as claimed in claim 9, wherein the at least one database is an expansion telephone directory.

16. A mobile phone as claimed in claim 15, wherein the expansion telephone directory stored in the nonvolatile memory differs in format from the electronic telephone directory stored on the SIM card, there being an internally assigned expansion telephone directory for each electronic telephone directory, and the expansion telephone directory being assigned by an IMSI to the electronic telephone directory.

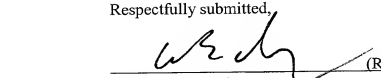
REMARKS

The present amendment makes editorial changes and corrects typographical errors in the specification, which includes the Abstract, in order to conform the specification to the requirements of United States Patent Practice. No new matter is added thereby. Attached hereto is a marked-up version of the changes made to the specification by the present amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

In addition, the present amendment cancels original claims 1-8 in favor of new claims 9-16. Claims 9-16 have been presented solely because the revisions by red-lining and underlining which would have been necessary in claims 1-8 in order to present those claims in accordance with preferred United States Patent Practice would have been too extensive, and thus would have been too burdensome. The present amendment is intended for clarification purposes only and not for substantial reasons related to patentability pursuant to 35 USC §§101, 102, 103 or 112. Indeed, the cancellation of claims 1-16 does not constitute an intent on the part of the Applicants to surrender any of the subject matter of claims 1-8.

Early consideration on the merits is respectfully requested.

Respectfully submitted,



(Reg. No. 39,056)

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Attorneys for Applicants

VERSIONS WITH MARKINGS TO SHOW CHANGES MADE

In The Specification:

The Specification of the present application, including the Abstract, has been amended as follows:

SPECIFICATION

TITLE OF THE INVENTION

MOBILE PHONE WITH EXPANDED TELEPHONE DIRECTORY

BACKGROUND OF THE INVENTION

The present invention relates to a mobile phone, in particular a mobile phone according to the GSM (GSM = Groupe Speciale Mobile) standard, having at least one electronic telephone directory, one of which is stored on the SIM card and, if applicable, the other electronic telephone directory or directories is/are arranged in the nonvolatile memory of the telephone.

Mobile phones of the prior art according to the GSM standard generally have at least one electronic telephone directory, and it has now become the practice almost always to use two or more telephone directories. One of these telephone directories is stored on the SIM (SIM = Subscriber Identity Module) card, referred to below as SIM, and ~~can~~ thus can be transported from one mobile phone to another. In contrast, the other telephone directory or directories is/are in the nonvolatile, internal memory which can be formed, for example, by EEPROMs or flash or battery-buffered RAM modules.

The internal data format of the SIM for storing telephone directory entries requires that a telephone directory entry ~~should~~ be composed of a sequence of numbers (telephone number) and an associated sequence of alphanumeric characters (name). The maximum length of the telephone number is at least 20 numbers, and the maximum length of the name can be between 0 and 241 characters.

The same format is usually used for telephone directory entries which are located in the nonvolatile memory, it being possible for the maximum lengths to differ from those on the SIM card. In other words, the number of attributes or features of a telephone directory entry, an attribute being a telephone number or a name in this case, has ~~thus hitherto~~ been prescribed by the GSM standard and SIM card and is two.

Because ~~hitherto~~, to date, the number of attributes for telephone entries of an SIM card has been prescribed, flexible use of the telephone directory of a mobile phone~~,~~ (for example, the grouping of telephone numbers according to certain properties such as work or personal), has not been possible.

The ~~invention is based on the object of~~ document EP-A-0 860 970 discloses a method for administering an electronic telephone directory or a telephone number database in the form in which it exists, for example, on an SIM card of a mobile phone. The telephone number database is divided into two memory areas; namely, into a first memory area in which telephone numbers which can be addressed via an abbreviated dialing method are arranged, and into a second memory area in which telephone numbers which cannot be addressed via an abbreviated dialing method are arranged. If a telephone number in the second memory area without the abbreviated dialing property is then to be shifted to a storage location in the first memory area with the abbreviated dialing property, the telephone number to be shifted is first shifted into a buffer, the number at the destination of the first memory area is shifted to the exit location of the memory area of the number to be shifted and then the number to be shifted is removed from the buffer and transmitted to the destination in the first buffer.

The document WO 98/30053 shows a mobile radio unit which has a telephone directory which is stored on an SIM card and a telephone directory which is stored in an EEPROM of the mobile radio unit. In order to select telephone directory entries easily, the two telephone directories are combined in an assignment table and abbreviated dialing numbers are assigned to specific telephone directory entries.

The document EP-A-0 915 604 discloses a method for searching through a database for a specific entry; in particular, for searching for an entry in a telephone directory which is stored in a mobile phone. The improved searching for a telephone directory entry is carried out in that, starting with the entry of a specific letter, all the variations of entries which have the entered letter and a different second letter are displayed. If the second letter of the entry is then also determined, all the variations of the first two entered letters appear with a third variable letter which also can be specified in a subsequent step. By repeated inputting of the respective following letters, a specific database entry or telephone directory entry is thus found.

The present invention is, therefore, directed toward acquiring expanded applications ~~by means of~~ via telephone directory entries, in particular of forming groups of telephone directory entries and, in this way, dividing up the telephone numbers according to personal, business or other criteria, for example~~; and the~~. The intention of the present invention is to overcome the format of the number of attributes which has been previously prescribed by the GSM standard and is of restricted length.

~~This object is achieved according to the invention by means of the features of patent claim 1. Further advantageous refinements are the subject matter of the dependent patent claims.~~

SUMMARY OF THE INVENTION

According to the present invention, any electronic telephone directory of a mobile phone is supplemented by, in each case, one database which is located in the nonvolatile memory of the mobile phone, each database being assigned to precisely one specific telephone directory. The uniquely defined assignment is made ~~by means of~~ via a key.

Each database entry here is preferably indexed ~~by means of~~ via a telephone number and has what is referred to as an attribute data field which is composed of a list of attribute designator/attribute value pairs, an attribute designator specifying the nature of the attribute value~~,~~ (for example ~~address~~, address), and an attribute value representing the value of the attribute~~,~~; for example, the address associated with the telephone number. The attribute value can remain empty if the existence of the attribute is sufficient as information~~,~~ (for example, car pool~~; and if~~). If there is only one, it does not need to be specified in more detail with a value.

When an entry in a telephone directory is accessed, a test is first automatically carried out to determine whether there is a database for this telephone directory. If this is the case, the additional information present in the database relating to the telephone number of the above entry can be made accessible as a key. The database which is assigned to a telephone directory is preferably in the form of an expansion telephone directory. A ~~plurality~~ number of expansion telephone directories ~~can~~ also can be assigned to each telephone directory.

The advantages of the present invention result from the number of possible attributes. Conceivable additional attributes for telephone numbers are:

– ~~A~~ Fax-compatible, SMS-compatible, voice-compatible, email-compatible:

Telephone numbers which are characterized with this attribute permit the selection of a corresponding service when text messages are transmitted.

– ~~B~~ Personal, business, etc.:

Telephone numbers which are characterized with this attribute can be assigned to specific groups, for example, to the group of private telephone numbers or to that of business telephone numbers. Access to the telephone directory ~~can~~ thus can be made easier in that the user first specifies the group in which ~~he~~ he/she would like to search and then subsequently searches, for example, alphabetically for the desired subscriber within the selected group.

– ~~C~~ Supervisory board, management group, etc.

These attributes can designate groups to which the user would like to send text messages, fax messages or voice messages. The selection of the transmission method could be carried out automatically in conjunction with the compatibility attribute ~~A.~~ In addition, the mobile phone could automatically switch conference circuits with the respective group members ~~by means of~~ via these attributes.

– ~~D.~~ Address, etc.

In the case of these attributes, in contrast to the previous ones, an attribute value, namely the address associated with the telephone number, is associated with the attribute "address". ~~Said~~ This address could be used as additional information by the user or be integrated into the fax header when a fax message is sent.

– ~~E.~~ Language:

The value of the attribute language indicates, for example, which language the fax header should be in.

– ~~F.~~ Alternative call number:

The value of this attribute determines an alternative call number which is selected automatically if the primary number is, for example, occupied or cannot be reached.

– ~~G.~~ Ringing tone:

The attribute value defines the ringing tone, in order, for example, to distinguish acoustically between a call from the characterized number and other numbers ~~by means of~~ via the pitch or the sound.

– ~~H.~~ Response method:

The attribute value indicates whether or not a call is to be automatically accepted from the assigned telephone number. A possible method would be to accept the call in order then to play a specific short text (voice message), or that the mobile phone stores the calling telephone number and informs the mobile phone owner of the attempt to make a call or possibly of the content, by email or by fax.

Additional features and advantages of the present invention are described in, and will be apparent from, the following detailed Description of the Invention and the Figures.

BRIEF DESCRIPTION OF THE FIGURES

~~Preferred embodiments of the invention are explained in more detail below with reference to the figures:~~

Fig. 1 shows a schematic view of the inventive expansions of the telephone directory of a mobile phone~~;~~.

Fig. 2 shows an example of an attribute in the expanded telephone directory according to the present invention~~, and~~.

Fig. 3 shows a completed, expanded entry.

DETAILED DESCRIPTION OF THE INVENTION

There are two implementation proposals for the invention.

Fig. 1 shows a mobile phone 1 with its accessories~~; it has~~;. It includes inter alia, ~~a~~ an SIM card 2, 3 and a nonvolatile internal memory 10. Part 11 of the nonvolatile memory 10 is used for storing one or more telephone directories 13, 14.

An SIM card 2 is inserted into the mobile phone 1 in a schematic view. The other view of the same SIM card 3 serves for explanatory purposes. On such an SIM card 2, 3 there is a nonvolatile memory 8, part 9 of which is used as a telephone directory 15. In addition, the SIM card 2, 3 contains what is referred to as the IMSI (International Mobile Subscriber Identity) 7 for identification purposes.

In addition, an entry 6 of a telephone directory 15 of an SIM card 2, 3 is illustrated in the lower part of ~~fig. 1~~ Fig. 1. Such an entry 6 contains the telephone number 4 and the name 5 of the subscriber~~;~~ i.e., two attributes.

The first implementation assigns a second expansion telephone directory 17, 18, 19 to each standard telephone directory 13, 14 and/or 15 which has the standard storage entries 6 composed of the telephone number 4 and name 5, stored in the nonvolatile memory unit 9 of the memory 8 of the SIM card 2, 3 or in the nonvolatile memory unit 11 of the memory 10 of the mobile phone 1~~, said~~. The expansion telephone directory 17, 18, 19 ~~being~~ is arranged in a further memory unit 16 of the nonvolatile memory 10. The assignment is made by reference to a uniquely allocated identification number 12. The identification number 1, which appears in the expansion telephone directory 17 as E1, is represented for the telephone directory 13 in ~~fig. 1~~ Fig. 1. A 2 is schematically represented for the telephone directory 14, to which the expansion telephone directory 18 is assigned with the identification number E2. In an analogous fashion, a telephone directory with the IMSI 0542876 is correspondingly assigned to the expansion telephone directory 19 with the number E0542876~~;~~ i.e., the telephone directory 15 is assigned to the illustrated SIM card 3.

In addition, further expansion telephone directories 20, which relate to SIM card telephone directories of SIM cards (not illustrated) other than those which are currently in use can be located in the region 16 of the nonvolatile memory 10.

Fig. 2 then illustrates the entries 24 of an expansion telephone directory 17, 18, 19, 20. Such expanded entries 24 of an expansion telephone directory are composed of the telephone number 21 and a data field 25 of a variable size.

The attributes which are assigned to the telephone number 21 and are composed of an attribute designator 22 and an attribute value 23 are in this data field 25, it being possible for the attribute value 23 to be empty at specific attribute

designators 22. For example, the attribute designators "voice-compatible", "business" or "supervisory board" do not have to contain an attribute value, but they can.

The attribute value specifies the nature of the attribute designator. This is apparent from the examples illustrated. For example, the attribute designator "address" is specified by the value~~;~~ i.e., the actual address. For the attribute designator "language", "German" specifies the value. The same applies to "alternative call number" and "ringing tone".

The attribute values are represented syntactically in inverted commas and separated off from the preceding attribute designator by a colon. The attribute value can be omitted if the existence of the attribute designator is sufficient as information.

During the reading process, the entry in the standard telephone directory is linked to the entry in the expansion telephone directory by reference to the telephone number, and is available as an expanded telephone directory entry 24.

During storage, the entire telephone directory entry which is made available by a corresponding application is split into a standard telephone directory entry 6, i.e., telephone number and name, and into an expanded telephone directory entry 24, i.e., telephone number and attributes (which are empty under certain circumstances). The entries are stored separately. The storage of an expanded entry 24 can be dispensed with if the attributes are empty. In this case, it would, however, be necessary to check whether there is an entry in the expanded telephone directory 17, 18, 19, 20. This would then have to be erased~~, because otherwise~~. Otherwise, a superfluous link would be produced.

During searching, operations are carried out sequentially. Depending on the search criterion, the standard telephone directory is firstly searched through for the telephone number or name, or the expansion telephone directory searched through for specific attributes. The entries which are found are completed to form expanded telephone directory entries.

The deletion of entries is carried out by reference to the telephone number, both the entry in the telephone directory and the entry in the expanded telephone directory being erased.

In the second implementation as illustrated in ~~fig. 3~~ Fig. 3, telephone directories which are stored in the nonvolatile internal memory 10 of the mobile phone

1 differ in format from those external telephone directories which are stored on the SIM card 2, 3. Here, the entries in the internal telephone directories correspond in format to the expanded telephone directory 24 described above in the first implementation, the internal telephone directory now containing not only the telephone number 4, 21 but also the name 5.

For each external telephone directory 15, therefore, there is ~~therefore~~ an internal telephone directory 19 which is, in turn, uniquely assigned to the external telephone directory by the IMSI (International Mobile Subscriber Identity) 7. Reading and writing access operations to telephone directories to which an external telephone directory is assigned are permitted only if the SIM card 2, 3 is inserted.

Apart from the internal telephone directories which are assigned to the external telephone directories stored on SIM cards, there ~~can~~ also can be further internal telephone directories.

Whenever the telephone is switched on or ~~a~~ an SIM card is inserted, the entries in the SIM card telephone directory are compared with the entries in the assigned internal telephone directory. Entries which are present in the external telephone directory but not in the internal one are copied. Because there are no attributes in entries of external telephone directories because the format does not permit any for entries in

SIM card telephone directories, this data field remains empty in the entries in the assigned internal telephone directory. Entries which are present in the internal assigned telephone directory, but not in the external one, are erased in the internal one. In the case of entries which are present in both telephone directories but are different, the entry in the internal, assigned telephone directory is overwritten by the entry in the external telephone directory.

Reading access operations to telephone directories are made only to the internal telephone directories. In the case of reading access operations which relate to the SIM card telephone directory, the internal assigned telephone directory is resorted to.

In the case of writing access operations, entries which are reduced to the telephone number and name are written to the SIM card telephone directory, and complete expanded entries are stored in the internal telephone directory.

Although the present invention has been described with reference to specific embodiments, those of skill in the art will recognize that changes may be made thereto without departing from the spirit and scope of the invention as set forth in the hereafter appended claims.

ABSTRACT OF THE DISCLOSURE

A mobile phone with an expanded telephone directory, wherein any electronic telephone directory of the mobile phone is supplemented by, in each case, one data base located in the nonvolatile memory of the mobile phone, each data base being assigned to precisely one specific telephone directory. The data base assigned to a telephone directory is preferably an expansion telephone directory, and a number of the expansion telephone directories can be assigned to each telephone directory.

Expanded telephone directory for a mobile phone

The invention relates to a mobile phone, in particular a mobile phone according to the GSM (GSM = Groupe Speciale Mobile) standard, having at least one electronic telephone directory, one of which is stored on the SIM card and, if applicable, the other electronic telephone directory or directories is/are arranged in the nonvolatile memory of the telephone.

Mobile phones of the prior art according to the GSM standard generally have at least one electronic telephone directory, and it has now become the practice almost always to use two or more telephone directories. One of these telephone directories is stored on the SIM (SIM = Subscriber Identity Module) card, referred to below as SIM, and can thus be transported from one mobile phone to another. In contrast, the other telephone directory or directories is/are in the nonvolatile, internal memory which can be formed, for example, by EEPROMs or flash or battery-buffered RAM modules.

The internal data format of the SIM for storing telephone directory entries requires that a telephone directory entry should be composed of a sequence of numbers (telephone number) and an associated sequence of alphanumeric characters (name). The maximum length of the telephone number is at least 20 numbers, and the maximum length of the name can be between 0 and 241 characters.

The same format is usually used for telephone directory entries which are located in the nonvolatile memory, it being possible for the maximum lengths to differ from those on the SIM card. In other words the number of attributes or features of a telephone directory entry, an attribute being a telephone number or a name in this case, has thus hitherto been prescribed by the GSM standard and SIM card and is two.

Because hitherto the number of attributes for telephone entries of an SIM card has been prescribed, flexible use of the telephone directory of a mobile phone, for example, the grouping of telephone numbers according to certain properties such as work or personal has not been possible.

The document EP-A-0 860 970 discloses a method for administering an electronic telephone directory or a telephone number database in the form in which it exists, for example, on an SIM card of a mobile phone. The telephone number database is divided into two memory areas, namely into a first memory area in which telephone numbers which can be addressed by means of an abbreviated dialing method are arranged, and into a second memory area in which telephone numbers which cannot be addressed by means of an abbreviated dialing method are arranged. If a telephone number in the second memory area without the abbreviated dialing property is then to be shifted to a storage location in the first memory area with the abbreviated dialing property, the telephone number to be shifted is firstly shifted into a buffer, the number at the destination of the first memory area is shifted to the exit location of the memory area of the number to be shifted and then the number to be shifted is removed from the buffer and transmitted to the destination in the first buffer.

The document WO 98/30053 shows a mobile radio unit which has a telephone directory which is stored on an SIM card and a telephone directory which is stored in an EEPROM of the mobile radio unit. In order to select telephone directory entries easily, the two telephone directories are combined in an assignment table and abbreviated dialing numbers are assigned to specific telephone directory entries.

The document EP-A-0 915 604 discloses a method for searching through a database for a specific entry, in particular for searching for an entry in a telephone directory which is stored in a mobile phone. The improved searching for a telephone directory entry is carried out in that,

starting with the entry of a specific letter, all the variations of entries which have the entered letter and a different second letter are displayed. If the second letter of the entry is then also determined, all the variations of the first two entered letters appear with a third variable letter which can also be specified in a subsequent step. By repeated inputting of the respective following letters, a specific database entry or telephone directory entry is thus found.

The invention is based on the object of acquiring expanded applications by means of telephone directory entries, in particular of forming groups of telephone directory entries and in this way dividing up the telephone numbers according to personal, business or other criteria, for example; and the intention is to overcome the format of the number of attributes which has been previously prescribed by the GSM standard and is of restricted length.

This object is achieved according to the invention by means of the features of patent claim 1. Further advantageous refinements are the subject matter of the dependent patent claims.

According to the invention, any electronic telephone directory of a mobile phone is supplemented by in each case one database which is located in the nonvolatile memory of the mobile phone, each database being assigned to precisely one specific telephone directory. The uniquely defined assignment is made by means of a key.

Each database entry here is preferably indexed by means of a telephone number and has what is referred to as an attribute data field which is composed of a list of attribute designator/attribute value pairs, an attribute designator specifying the nature of the attribute value, for example address, and an attribute value representing the value of the attribute, for example, the address associated with the telephone number. The attribute value can remain empty if the existence of the attribute is sufficient as information, for example, car pool; and if there is only one, it does not need to be specified in more detail with a value.

When an entry in a telephone directory is accessed, a test is first automatically carried out to determine whether there is a database for this telephone directory. If this is the case, the additional information present in the database relating to the telephone number of the above entry can be made accessible as a key. The database which is assigned to a telephone directory is preferably in the form of an expansion telephone directory. A plurality of expansion telephone directories can also be assigned to each telephone directory.

The advantages of the invention result from the number of possible attributes. Conceivable additional attributes for telephone numbers are:

A Fax-compatible, SMS-compatible, voice-compatible, email-compatible:
Telephone numbers which are characterized with this attribute permit the selection of a corresponding service when text messages are transmitted.

B Personal, business, etc.:
Telephone numbers which are characterized with this attribute can be assigned to specific groups, for example, to the group of private telephone numbers or to that of business telephone numbers. Access to the telephone directory can thus be made easier in that the user first specifies the group in which he would like to search and then subsequently searches, for example, alphabetically for the desired subscriber within the selected group.

C Supervisory board, management group, etc.
These attributes can designate groups to which the user would like to send text messages, fax messages or voice messages. The selection of the transmission method could be carried out automatically in conjunction with attribute A. In addition, the mobile phone could automatically switch conference circuits with the respective group members by means of these attributes.

D. Address, etc.

In the case of these attributes, in contrast to the previous ones, an attribute value, namely the address associated with the telephone number, is associated with the attribute "address". Said address could be used as additional information by the user or be integrated into the fax header when a fax message is sent.

E. Language:
The value of the attribute language indicates, for example, which language the fax header should be in.

F. Alternative call number:
The value of this attribute determines an alternative call number which is selected automatically if the primary number is, for example, occupied or cannot be reached.

G. Ringing tone:
The attribute value defines the ringing tone, in order, for example, to distinguish acoustically between a call from the characterized number and other numbers by means of the pitch or the sound.

H. Response method:
The attribute value indicates whether or not a call is to be automatically accepted from the assigned telephone number. A possible method would be to accept the call in order then to play a specific short text (voice message), or that the mobile phone stores the calling telephone number and informs the mobile phone

owner of the attempt to make a call or possibly of the content, by email or by fax.

Preferred embodiments of the invention are explained in more detail below with reference to the figures:

Fig. 1 shows a schematic view of the inventive expansions of the telephone directory of a mobile phone,

Fig. 2 shows an example of an attribute in the expanded telephone directory according to the invention, and

Fig. 3 shows a completed, expanded entry.

There are two implementation proposals for the invention.

Fig. 1 shows a mobile phone 1 with its accessories; it has, inter alia, a SIM card 2, 3 and a nonvolatile internal memory 10. Part 11 of the nonvolatile memory 10 is used for storing one or more telephone directories 13, 14.

An SIM card 2 is inserted into the mobile phone 1 in a schematic view. The other view of the same SIM card 3 serves for explanatory purposes. On such an SIM card 2, 3 there is a nonvolatile memory 8, part 9 of which is used as a telephone directory 15. In addition, the SIM card 2, 3 contains what is referred to as the IMSI (International Mobile Subscriber Identity) 7 for identification purposes.

In addition, an entry 6 of a telephone directory 15 of an SIM card 2, 3 is illustrated in the lower part of fig. 1. Such an entry 6 contains the telephone number 4 and the name 5 of the subscriber, i.e. two attributes.

The first implementation assigns a second expansion telephone directory 17, 18, 19 to each standard telephone directory 13, 14 and/or 15 which has the standard storage entries 6 composed of the telephone number 4 and name 5, stored in the nonvolatile memory unit 9 of the memory 8 of the SIM card 2, 3 or in the nonvolatile memory unit 11 of the memory 10 of the mobile phone 1, said expansion telephone directory 17, 18, 19 being arranged in a further memory unit 16 of the nonvolatile memory 10. The assignment is made by reference to a uniquely allocated identification number 12. The identification number 1, which appears in the expansion telephone directory 17 as E1, is represented for the telephone directory 13 in fig. 1. A 2 is schematically represented for the telephone directory 14, to which the expansion telephone directory 18 is assigned with the identification number E2. In an analogous fashion, a telephone directory with the IMSI 0542876 is correspondingly assigned to the expansion telephone directory 19 with the number E0542876, i.e. the telephone directory 15 is assigned to the illustrated SIM card 3.

In addition, further expansion telephone directories 20, which relate to SIM card telephone directories of SIM cards (not illustrated) other than those which are currently in use can be located in the region 16 of the nonvolatile memory 10.

Fig. 2 then illustrates the entries 24 of an expansion telephone directory 17, 18, 19, 20. Such expanded entries 24 of an expansion telephone directory are composed of the telephone number 21 and a data field 25 of a variable size.

The attributes which are assigned to the telephone number 21 and are composed of an attribute designator 22 and an attribute value 23 are in this data field 25, it being possible for the attribute value 23 to be empty at specific attribute designators 22. For example, the attribute designators "voice-compatible", "business" or "supervisory board" do not have to contain an attribute value, but they can.

The attribute value specifies the nature of the attribute designator. This is apparent from the examples illustrated. For example, the attribute designator "address" is specified by the value, i.e. the actual address. For the attribute designator "language", "German" specifies the value. The same applies to "alternative call number" and "ringing tone".

The attribute values are represented syntactically in inverted commas and separated off from the preceding attribute designator by a colon. The attribute value can be omitted if the existence of the attribute designator is sufficient as information.

During the reading process, the entry in the standard telephone directory is linked to the entry in the expansion telephone directory by reference to the telephone number, and is available as an expanded telephone directory entry 24.

During storage, the entire telephone directory entry which is made available by a corresponding application is split into a standard telephone directory entry 6, i.e. telephone number and name, and into an expanded telephone directory entry 24, i.e. telephone number and attributes (which are empty under certain circumstances). The entries are stored separately. The storage of an expanded entry 24 can be dispensed with if the attributes are empty. In this case, it would, however, be necessary to check whether there is an entry in the expanded telephone directory 17, 18, 19, 20. This would then have to be erased, because otherwise a superfluous link would be produced.

During searching, operations are carried out sequentially. Depending on the search criterion, the standard telephone directory is firstly searched through for the telephone number or name, or the expansion telephone directory searched through for specific attributes. The entries which are found are completed to form expanded telephone directory entries.

The deletion of entries is carried out by reference to the telephone number, both the entry in the telephone directory and the entry in the expanded telephone directory being erased.

In the second implementation as illustrated in fig. 3, telephone directories which are stored in the nonvolatile internal memory 10 of the mobile phone 1 differ in format from those external telephone directories which are stored on the SIM card 2, 3. Here, the entries in the internal telephone directories correspond

in format to the expanded telephone directory 24 described above in the first implementation, the internal telephone directory now containing not only the telephone number 4, 21 but also the name 5.

For each external telephone directory 15, there is therefore an internal telephone directory 19 which is in turn uniquely assigned to the external telephone directory by the IMSI (International Mobile Subscriber Identity) 7. Reading and writing access operations to telephone directories to which an external telephone directory is assigned are permitted only if the SIM card 2, 3 is inserted.

Apart from the internal telephone directories which are assigned to the external telephone directories stored on SIM cards, there can also be further internal telephone directories.

Whenever the telephone is switched on or a SIM card is inserted, the entries in the SIM card telephone directory are compared with the entries in the assigned internal telephone directory. Entries which are present in the external telephone directory but not in the internal one are copied. Because there are no attributes in entries of external telephone directories because the format does not permit any for entries in SIM card telephone directories, this data field remains empty in the entries in the assigned internal telephone directory. Entries which are present in the internal assigned telephone directory, but not in the external one, are erased in the internal one. In the case of entries which are present in both telephone directories but are different, the entry in the internal, assigned telephone directory is overwritten by the entry in the external telephone directory.

Reading access operations to telephone directories are made only to the internal telephone directories. In the case of reading access operations which relate to the SIM card telephone directory, the internal assigned telephone directory is resorted to.

In the case of writing access operations, entries which are reduced to the telephone number and name are written to the SIM card telephone directory, and complete expanded entries are stored in the internal telephone directory.

New patent claims

1. A mobile phone (1) having a nonvolatile memory (10), which has at least one electronic telephone directory (13, 14, 15), one (15) of which is stored in the memory (8) of the SIM card (2, 3) and, if applicable, the other telephone directory or directories (14, 15) is/are in the non-volatile memory (10), the number of attributes, here telephone number (4) and name (5), of a standard telephone directory (13, 14, 15) being prescribed by the SIM card (2, 3), characterized in that at least one database (17, 18, 19) which is arranged in the nonvolatile memory (10) is assigned precisely to each telephone directory (13, 14, 15), it being possible to bring about an assignment of each entry of a telephone directory to a corresponding database entry which has a data field of variable size with respect to the number of additional attributes assigned to a telephone directory entry.

2. The mobile phone as claimed in claim 1, characterized in that each telephone directory (13, 14, 15) is assigned precisely one database (17, 18, 19).

3. The mobile phone as claimed in one of the preceding claims, characterized in that each database (17, 18, 19) has a key (12) which gives rise to the uniquely defined relationship between the database (17, 18, 19) and the associated telephone directory (13, 14, 15).

4. The mobile phone as claimed in one of claims 1 to 3, characterized in that each database entry (24) also has a characteristic diagram (21), the characteristic diagram (21) pointing to the corresponding telephone

directory entry (6) in the corresponding telephone directory (13, 14, 15).

5. The mobile phone as claimed in claim 4, characterized in that the characteristic diagram (21) of the database entry (24) contains the corresponding telephone number (4).

6. The mobile phone as claimed in claim 4 or 5, characterized in that the data field (25) of a database entry (24) contains the additional attributes (22, 23) of the telephone number (4) of the corresponding telephone directory (13, 14, 15).

7. The mobile phone as claimed in one of the preceding claims, characterized in that the databases (17, 18, 19, 20) are in the form of expansion telephone directories.

8. The mobile phone as claimed in one of the preceding claims, characterized in that what are referred to as the internal databases or expansion telephone directories (19) which are stored in the nonvolatile memory (10) differ in format from the external telephone directories (15) which are stored on the SIM card (2, 3), there being an internally assigned expansion telephone directory (19) for each external telephone directory (15), said expansion telephone directory (19) in turn being assigned in a uniquely defined way by its IMSI (7) to the external telephone directory (19).

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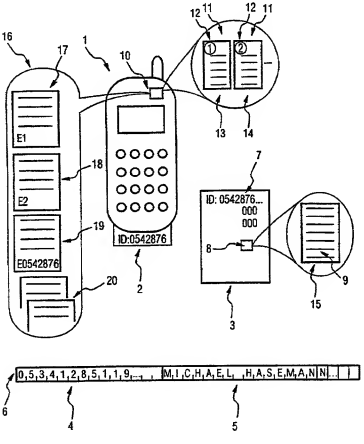
[Fortsetzung auf der nächsten Seite]

(54) Title: EXTENDED TELEPHONE DIRECTORY FOR A MOBILE TELEPHONE

(54) Bezeichnung: ERWEITERTES TELEFONBUCH FÜR EIN MOBILTELEFON

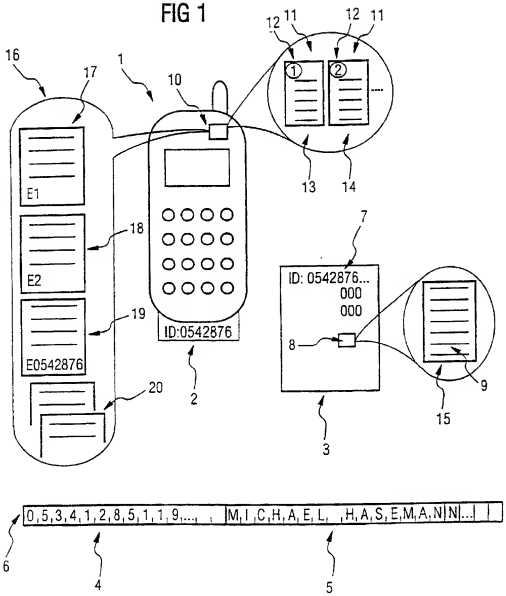


(57) Abstract: The invention relates to a mobile telephone, especially a GSM mobile telephone, with electronic telephone directories that are stored on a SIM card or in a non-volatile memory. The telephone directory entries are provided with additional attributes beyond the standard entry of telephone number and name. This is achieved by means of one or more clearly associated extension telephone directories.

(57) Zusammenfassung: Ein Mobiltelefon, insbesondere ein GSM-Mobiltelefon, hat elektronische Telefonbücher, die auf einer SIM-Karte oder im nichtflüchtigen Speicher gespeichert sind. Die Telefonbucheinträge werden um zusätzliche Attribute, die über den Standardeintrag von Telefonnummer und Namen hinausgehen, durch ein oder mehrere eindeutig zugeordnete Erweiterungstelefonbücher erweitert.

WO 00/79773 A1

FIG 1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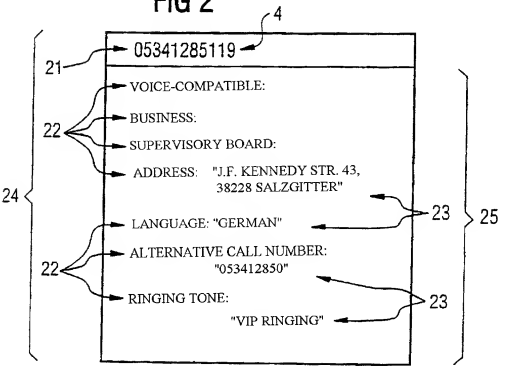
17
1
10
12
11
12
11
13
14
E1
E2
E0542876
18
19
20
2
ID:0542876
7
ID: 0542876...
000
000
8
9
15
3
0,5,3,4,1,2,8,5,1,1,9,...
M,I,C,H,A,E,L,
H,A,S,E,M,A,N
N...
6
4
5

2/2

FIG 2


4
05341285119
21
VOICE-COMPATIBLE:
22
BUSINESS:
SUPERVISORY BOARD:
ADDRESS: "J.F. KENNEDY STR. 43,
38228 SALZGITTER"
24
LANGUAGE: "GERMAN"
23
25
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ALTERNATIVE CALL NUMBER:
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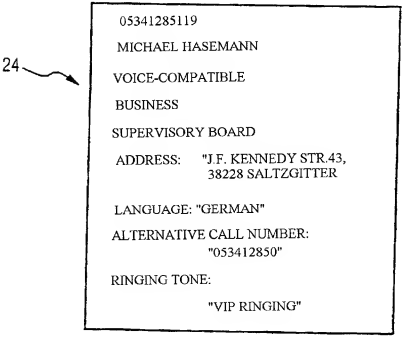
RINGING TONE:
23
"VIP RINGING"

FIG 3


24
05341285119
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ADDRESS: "J.F. KENNEDY STR.43,
38228 SALTZGITTER
LANGUAGE: "GERMAN"
ALTERNATIVE CALL NUMBER:
"053412850"
RINGING TONE:
"VIP RINGING"

Declaration and Power of Attorney For Patent Application
Erklärung Für Patentanmeldungen Mit Vollmacht
German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

As a below named inventor, I hereby declare that:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

My residence, post office address and citizenship are as stated below next to my name,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

ERWEITERTES TELEFONBUCH FÜR EIN MOBILTELEFON

EXTENDED TELEPHONE DIRECTORY FOR A MOBILE PHONE

deren Beschreibung

(zutreffendes ankreuzen)
☐ hier beigefügt ist.
☒ am 21.06.2000 als
PCT internationale Anmeldung
PCT Anmeldungsnummer PCT/DE00/02020
eingereicht wurde und am ______
abgeändert wurde (falls tatsächlich abgeändert).

the specification of which

(check one)
☐ is attached hereto.
☒ was filed on 21.06.2000 as
PCT international application
PCT Application No. PCT/DE00/02020
and was amended on ______
(if applicable)

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

Prior foreign appplications
Priorität beansprucht

			Priority Claimed	
19928666.3 (Number) (Nummer)	DE (Country) (Land)	23.06.1999 (Day Month Year Filed) (Tag Monat Jahr eingereicht)	☒ Yes Ja	☐ No Nein
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	☐ Yes Ja	☐ No Nein
(Number) (Nummer)	(Country) (Land)	(Day Month Year Filed) (Tag Monat Jahr eingereicht)	☐ Yes Ja	☐ No Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozeßordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code. §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occured between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/DE00/02020 (Application Serial No.) (Anmeldeseriennummer)	21.06.2000 (Filing Date D, M, Y) (Anmeldedatum T, M, J)	anhängig (Status) (patentiert, anhängig, aufgegeben)	pending (Status) (patented, pending, abandoned)
(Application Serial No.) (Anmeldeseriennummer)	(Filing Date D,M,Y) (Anmeldedatum T, M, J)	(Status) (patentiert, anhangig, aufgeben)	(Status) (patented, pending, abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

VERTRETUNGSVOLLMACHT: Als benannter Erfinder beauftrage ich hiermit den nachstehend benannten Patentanwalt (oder die nachstehend benannten Patentanwälte) und/oder Patent-Agenten mit der Verfolgung der vorliegenden Patentanmeldung sowie mit der Abwicklung aller damit verbundenen Geschäfte vor dem Patent- und Warenzeichenamt: *(Name und Registrationsnummer anführen)*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

And I hereby appoint

Customer No. 29177

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31137 HILDESHEIM	31137 HILDESHEIM
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Unterschrift des Erfinders Datum 4.2.2002	Second Inventor's signature Date 4.2.2002
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HEIDKAMP 20	HEIDKAMP 20
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Staatsangehörigkeit	Citizenship
Postanschrift	Post Office Address

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

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MARC PIETRIGA	MARC PIETRIGA
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14059 BERLIN	14059 BERLIN

Voller Name des fünften Miterfinders:	Full name of fifth joint inventor:
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Unterschrift des Erfinders Datum	Inventor's signature Date
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Staatsangehörigkeit	Citizenship
DE	DE
Postanschrift	Post Office Address
IM HOCHHOLZ 3	IM HOCHHOLZ 3
71549 AUENWALD	71549 AUENWALD

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German Language Declaration

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Telephone: (001) 312 372 11 21 and Facsimile (001) 312 372 20 98
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Customer No. 29177

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Unterschrift des Erfinders Datum: Volker Deichmann 20.09.2002	Inventor's signature Date
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Staatsangehörigkeit: DE	Citizenship: DE
Postanschrift: EDUARDSTR. 12 VD, 20.09.2002 ~~HASESTR. 12~~	Post Office Addess: HASESTR. 12
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